

REMARKS

Claims 1-10 are pending in the present application. Claims 1, 3 and 6 are independent. Reconsideration of this application, in view of the following remarks, is respectfully requested.

Interview With Examiner

An Interview was conducted with the Examiner in charge of the above-identified application on March 21, 2005. Applicants appreciate the courtesy shown by the Examiner during the interview. In the Interview with the Examiner, it was explained to the Examiner that Applicants were in the process of preparing a Declaration under 35 C.F. R. § 1.131 in order to antedate the Edelson et al. reference relied on by the Examiner. The Examiner indicated that such a Declaration would be considered a new issue and therefore would not be considered after final.

In view of the above, Applicants' representative suggested that an RCE be filed in order to expedite prosecution. The Examiner indicated that the next Office Action would not be made final, due to the fact that the Declaration would raise a new issue that would require further consideration and/or search. Accordingly, an RCE has been filed concurrently with the filing of the present Amendment.

Rejection Under 35 U.S.C. § 103

Claims 1 and 2 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Rankin et al, U.S. Patent No. 5,489,099 in view of Edelson et al., U.S. Application Publication No.

2002/0054211 A1. Claims 3 and 4-8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Rankin et al. in view of Yokota et al., U.S. Patent No. 5,905,530. Claims 9 and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Rankin et al. in view of Edelson et al. and further in view of Yokota et al. These rejections are respectfully traversed.

With regard to the Edelson et al. reference relied on by the Examiner, the Examiner has not been persuaded by the Arguments presented in the Request for Reconsideration dated January 13, 2005. Although Applicants believe that the Edelson et al. reference fails to make up for the deficiencies of Rankin et al., in order to expedite prosecution of the present application, Applicants will prepare a Declaration under 37 C.F.R. § 1.131 in order to antedate the Edelson et al. reference relied on by the Examiner. Applicants submit that the present invention was invented prior to the November 6, 2000 filing date of U.S. Provisional Application No. 60/245,710, which the Examiner relies on as the effective date of the Edelson et al. reference.

Applicants are in the process of having an appropriate Declaration under 37 C.F.R. § 1.131 prepared and executed. The Declaration will be forthcoming in about one (1) month. **If the Examiner is required to act on the present Request for Reconsideration before the Declaration is received, it is requested that the Examiner contact the undersigned prior to sending out a further Office Action.**

In view of the Declaration under 37 C.F.R. § 1.131, Applicants respectfully submit that the Edelson et al. reference has been removed as a reference against the present application. In view of this, the Examiner's rejections of claims 1, 2, 9 and 10 under 35 U.S.C. § 103 that rely on the

Edelson et al. reference have been rendered moot. Therefore, only the Examiner's rejection under 35 U.S.C. § 103 in view of the Rankin et al. and Yokota et al. references will be discussed below.

In particular, referring to Rankin et al., this reference is directed to an apparatus and method for tracking the flight of a golf ball. The Examiner recognizes that the Rankin et al. reference fails to disclose "a calculating section for correcting a coordinate error" as recited in independent claims 3 and 6 of the present invention. However, the Examiner relies on the Yokota et al. reference in order to modify Rankin et al. to arrive at the presently claimed invention. Applicants submit that the Yokota et al. reference fails to make up for the deficiencies of Rankin et al.

It should be noted that independent claims 3 and 6 recite "a calculating section for correcting a coordinate error of only a ball image in the original image." In addition, independent claims 3 and 6 recite "said correction data being used to calculate true coordinates of the ball image." As recognized by the Examiner, the Rankin et al. reference fails to disclose calculating any coordinate error and fails to disclose using correction data to calculate true coordinates of the ball image. In view of this, the only element of independent claims 3 and 6 that Rankin et al. discloses is a CCD camera and calculating motion of a ball from the ball image. Applicants respectfully submit that the Yokota et al. reference certainly fails to make up for all of the deficiencies of Rankin et al. There is absolutely no suggestion in the Yokota et al. reference to correct a coordinate error to calculate correction data and use the correction data to calculate ball motion as recited in independent claims 3 and 6 of the present invention.

Referring to Yokota et al., this reference discloses an image pickup apparatus that corrects distortion of an image due to an objective lens, not an object in an image. In addition, Yokota et al. fails to disclose calculating anything with regard to the corrected image. In view of this, Applicants submit that there is insufficient suggestion in Yokota et al. to modify Rankin et al. to both calculate a coordinate error to obtain correction data and use the correction data to calculate true coordinates of the ball image as recited in independent claims 3 and 6 of the present invention.

The Yokota et al. reference is not directed to a camera, which is used for measuring any motion, in particular ball motion as recited in independent claims 3 and 6 of the present invention. In view of this, there is no suggestion in the Yokota et al. reference to use corrected data for calculating motion of an object. Therefore, there is insufficient suggestion to modify the Rankin et al. CCD camera to both correct a coordinate error to obtain correction data of only a ball image and use the correction data to calculate true coordinates of the ball image as recited in independent claims 3 and 6 of the present invention.

In the Examiner's Advisory Action, the Examiner states the following with regard to the above comments:

In response, examiner agrees with applicant. However Yokota '530 reference is an improvement over the conventional image pickup apparatus, and as stated with regards to deficiency of the conventional image pickup apparatus (col. 2, lines 1 +) that, "electronic zooming is not very useful in photographing a moving object". Therefore, Yokota reference overcomes the prior deficiency by detection and consideration of the object/moving object in the process of correcting the image pickup apparatus (cols. 1-2, lines 65-30 and col. 7, lines 11-23) in electronic zooming.

Although the Yokota et al. reference may be an improvement over a conventional image pick-up, this does not change the fact that the Yokota et al. reference is completely unrelated to the Rankin et al. reference. The only disclosure in common between the Yokota et al. and Rankin et al. references is that both include a CCD camera. Neither of the Rankin et al. and Yokota et al. references disclose correcting a coordinate error to calculate correction data and using the correction data to calculate true coordinates of the ball image. In addition, there is no suggestion in the Yokota et al. reference to modify the Rankin et al. reference as proposed by the Examiner. The only disclosure of calculating correction data and using the correction data to calculate true coordinates of the ball image appears in Applicants own disclosure. Therefore, the Examiner is engaging in impermissible hindsight reconstruction.

In view of the above, Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness. The Examiner is directed to MPEP § 2142, third paragraph (May 2004) which states the following:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

In the present case, Applicant respectfully submits that the Examiner has failed to meet the burden in establishing a *prima facie* case of obviousness, since the Examiner has not provided any suggestion or motivation in the prior art to modify the combination of references relied on. The

Examiner must first establish a *prima facie* case of obviousness before the burden shifts to the Applicant to rebut the *prima facie* case. The Examiner is shifting the burden to Applicant to prove non-obviousness without first establishing obviousness.

Referring to paragraph 4 of MPEP § 2142, the Examiner is placed with the initial burden "to provide some suggestion of the desirability of doing what the inventor has done." The Examiner must show that the references expressly or impliedly suggest the claimed invention or a convincing line reasoning should be set forth as to why the modification is obvious. The Examiner has provided no suggestion or convincing line of reasoning in the present case. Accordingly, the Examiner's burden has not been satisfied.

In the present case, the Examiner's entire rationale for modifying the Banno et al. reference is as follows:

... However, such features are well known and used in the prior art as evidenced by Yokota '530 (i.e. figs. 1, 31 and 35, and abstract, lines 10-12, cols. 7-11) teaches process of correction of the image distortion caused by the cameral lens and also distorted and undistorted image with respect to the object, to have undistorted (true) coordinates of the object image. ... (see page 3, paragraph 4 of the Examiner's Office Action dated October 21, 2004).

Applicants respectfully submit that these conclusionary statements made by the Examiner are not a proper basis to substantiate an obviousness rejection. The Yokota et al. reference provides absolutely no teaching of correcting a coordinate error to calculate correction data and using the correction data to calculate true coordinates of the ball image and the Examiner has not provided any teaching in the prior art that would suggest one having ordinary skill in the art to correct a coordinate

error to calculate correction data and use the correction data to calculate true coordinates of the ball image. In view of this, the Examiner has not established a *prima facie* case of obviousness.

Recent Federal Circuit case law precedent makes it explicitly clear that the factual question of motivation is material to patentability and cannot be resolved on subjective belief and unknown authority, but must be read on the objective evidence of the record. Federal Circuit case law precedent further requires that "common sense and common knowledge" alone is improper evidence in support of an obviousness rejection.

The Examiner purports a common sense and common knowledge reason for the making up for the deficiencies of Rankin et al., in other words, stating that Yokota et al. suggests the modification due to the disclosure of correcting image distortion. However, common sense and knowledge are not objective evidence of record, as the Federal Circuit explains, but are in fact commensurate with subjective belief and unknown authority. Therefore, the Examiner has failed to meet the legal requirements to substantiate the obviousness rejection.

For an illuminating discussion on the burden placed on an Examiner to establish objective factual findings of record, the Examiner is referred to the Federal Circuit decision of *In re Lee*, 61 USPQ2d 1430 (CAFC 2002).

In re Lee involved an appeal of a decision of the Board of Patent Appeals in which *Lee* argued that the Examiner failed to provide a source of a teaching, suggestion, or motivation to combine the applied prior art to arrive at the claimed invention. The Board responded to these arguments by ruling that "[t]he conclusion of obviousness may be made from common knowledge

and common sense of a person of ordinary skill in the art without any specific hint or suggestion in a particular reference.” *Id.* at 1432. The Federal Circuit overturned the Board's decision “for failure to meet the adjudicative standards for review under the administrative procedure act.” *Id.* at 1431. The Federal Circuit further stated that “the factual inquiry whether to combine references must be thorough and searching...it must be based on objective evidence of record...[t]his precedent has been reinforced in a myriad of decisions and cannot be dispensed with.” *Id.* at 1433. The Court also stated that the USPTO is “not free to refuse to follow Circuit precedent” and “cannot rely on conclusionary statements when dealing with particular combinations of prior art and specific claims.” *Id.* at 1434.

As stated herein above, the Examiner’s asserted modification of Rankin et al., and the lack of factual support thereof comports very closely to the analysis disapproved by the Federal Circuit in *In re Lee*. As such, the Examiner's failure to provide factual support for a teaching, suggestion or motivation to modify Rankin et al. constitutes legal error.

With specific regard to independent claim 6, the Examiner asserts that this claim is similar to claim 3 and therefore is also rejected in view of the Rankin et al. and Yokota et al. references. Specifically, the Examiner asserts that the shift of a direction of the object image would be included in the process of correcting the object image distortion. However, independent claim 6 recites that the calculating section corrects a coordinate error of only a ball image in the original image “made by a shift of a direction of the ball image from a direction of an optical axis of the CCD camera.” This aspect of the present invention has nothing to do with the distortion caused by the lens of the CCD camera. The coordinate error caused by “a shift of a direction of the ball image from the

direction of the optical axis of the CCD camera” is due to the ball 1 being shifted from the reference plane (see the reference plane s in Figure 5 of the present invention). Referring to page 9, second full paragraph of the present invention, this aspect of the present invention is described. Specifically, if the ball 1 is shifted from the reference plane s due to a shot that is not straight, the z coordinate of the ball is not zero. Therefore, the coordinate error calculated in claim 6 is due to the ball being closer to or further away from the reference plane. In view of this, in addition to the above deficiencies of Yokota et al., Applicants submit that this reference also fails to disclose calculating a coordinate error due to a shift of a direction of the ball image from a direction of the optical axis of the CCD camera as recited in claim 6.

In reply to the above comments, the Examiner states the following:

In response: the features as cited above are well known and obvious over the combination teaching of Yokota and Rankin. After reading the cited references more precisely, it is noted that, the above claimed limitation clearly reads on “fig. 5, steps 64-69” of Ranking.”

Referring to the above portions of Rankin et al., there is only a disclosure that the area of the ball image is calculated and the actual location and size of the ball is determined. However, claim 6 of the present invention specifically recites “correcting a coordinate error of only a ball image in the original image made by a shift of a direction of the ball image from a direction of an optical axis of the CCD camera.” There is no disclosure in the Rankin et al. reference that teaches or suggests this aspect of the present invention. In view of this, the Examiner’s rejection is improper and should be withdrawn.

With regard to dependent claims 4, 5, 7 and 8, Applicants respectfully submit that these claims are allowable due to their respective dependence on independent claims 3 and 6, as well as due to the additional recitations in these claims.

In view of the above amendments and remarks, Applicants respectfully submit that claims 1-10 clearly define the present invention over the references relied on by the Examiner. Accordingly, reconsideration and withdrawal of the Examiner's rejections under 35 U.S.C. § 103 are respectfully requested.

CONCLUSION

All the stated grounds of rejection have been properly traversed and/or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently pending rejections and that they be withdrawn.

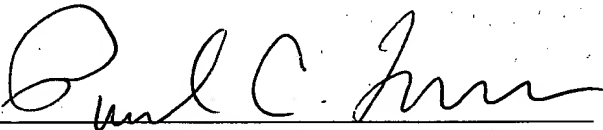
It is believed that a full and complete response has been made to the Office Action, and that as such, the Examiner is respectfully requested to send the application to Issue.

In the event there are any matters remaining in this application, the Examiner is invited to contact Paul C. Lewis, Registration No. 43,368 at (703) 205-8000 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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